

THERMAL STABILITY OF GaAs/InAs/GaAs HETEROSTRUCTURE STUDIED BY X-RAY CRYSTAL TRUNCATION ROD SCATTERING MEASUREMENT

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Abstract

Distribution of In in GaAs/InAs(1ML)/GaAs structure was investigated by X-ray crystal truncation rod scattering measurement. The InAs layer and the GaAs cap layer were grown at 480°C on the GaAs buffer layer grown at 590°C. After the growth, the samples were annealed at different temperatures, and the thermal stability of the GaAs/InAs/GaAs structure was investigated. In atoms were surely confirmed in 1ML when the sample was as grown. However, when the sample was annealed at 590°C only for 10min, the In atoms widely spreaded in the GaAs layers. The diffusion coefficient of In in the GaAs layer grown at 480°C was greater than that in the GaAs layer grown at 590°C. The difference is considered to be caused by the Ga vacancies generated in the GaAs layer grown at 480°C.